

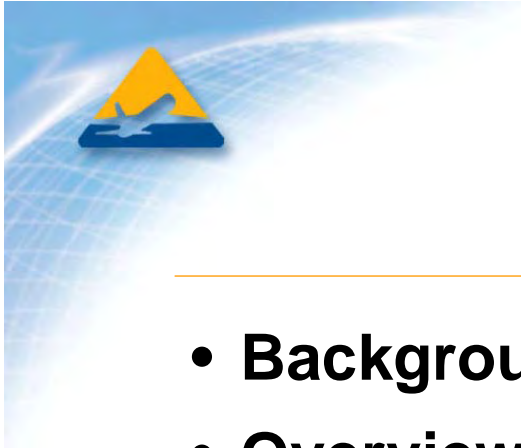


CENTER FOR ADVANCED AVIATION SYSTEM DEVELOPMENT (CAASD)

BOS Runway 27 Compliance Update

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Outline

- **Background**
- **Overview of the Analysis Process**
- **Compilation of Results**
- **Comparison of Results to Previous Analyses**
- **Analysis of Bad Performers**
- **Analysis of Miss Distance**
- **Conclusions**



Background

- Prior to July 2005, Massport (MPA) had been compiling information on Runway 27 jet departures
- The Runway 27 Advisory Committee asked FAA to do their own independent assessment
- FAA tasked the Air Traffic Airspace Lab (ATA Lab) to perform analysis
- ATA Lab analyzed nine months of radar data (July 2005 – March 2006)
 - Labor-intensive manual processing
 - ATA Lab showed better compliance than earlier MPA analysis
- The MITRE Corporation's Center for Advanced Aviation System Development (CAASD), as the FAA's Federally Funded Research and Development Center (FFRDC) was assigned two tasks:
 - Perform an independent Offload analysis to confirm ATA Lab findings
 - Develop an automated system for ongoing reporting



The CAASD Difference

- The MITRE Corporation has helped the FAA address the nation's most critical aviation issues since the company's creation in 1958
- In 1990, the FAA designated MITRE's aviation program as an FFRDC and created CAASD
 - We work in the public interest, operating as FAA's strategic partner
 - We are organized as an independent, not-for-profit entity with limitations and restrictions to ensure the highest levels of objectivity
 - We have a degree of access and a long-term perspective not shared by commercial contractors
- Our mission is to advance the safety, security, effectiveness, and efficiency of aviation in the United States and around the world



Overview of the Analysis Process



Offload Data

- **Currently, the National Offload Program Archive includes radar data from 77 Terminal Radar Approach Controls (TRACONs) and 20 Air Route Traffic Control Centers (ARTCCs)**
- **Data compiled from Automated Radar Terminal System IIIA (ARTS IIIA), Common ARTS, and Standard Terminal Automation Replacement System (STARS) facilities**
- **Flight tracks from multiple radars and facilities can be easily linked**
- **Offload at Boston TRACON (A90)**
 - **Logan's primary radar is an Airport Surveillance Radar Model 9 (ASR-9)**
 - **A90 is a STARS facility**
 - **Five-second radar hits with automated post-processing to link points to form tracks**



Alignment Between Runways and Arrivals Demonstrates Data Accuracy



Source: National Offload Program Archive, Selected Arrivals from Nov 2006 through Jan 2007.

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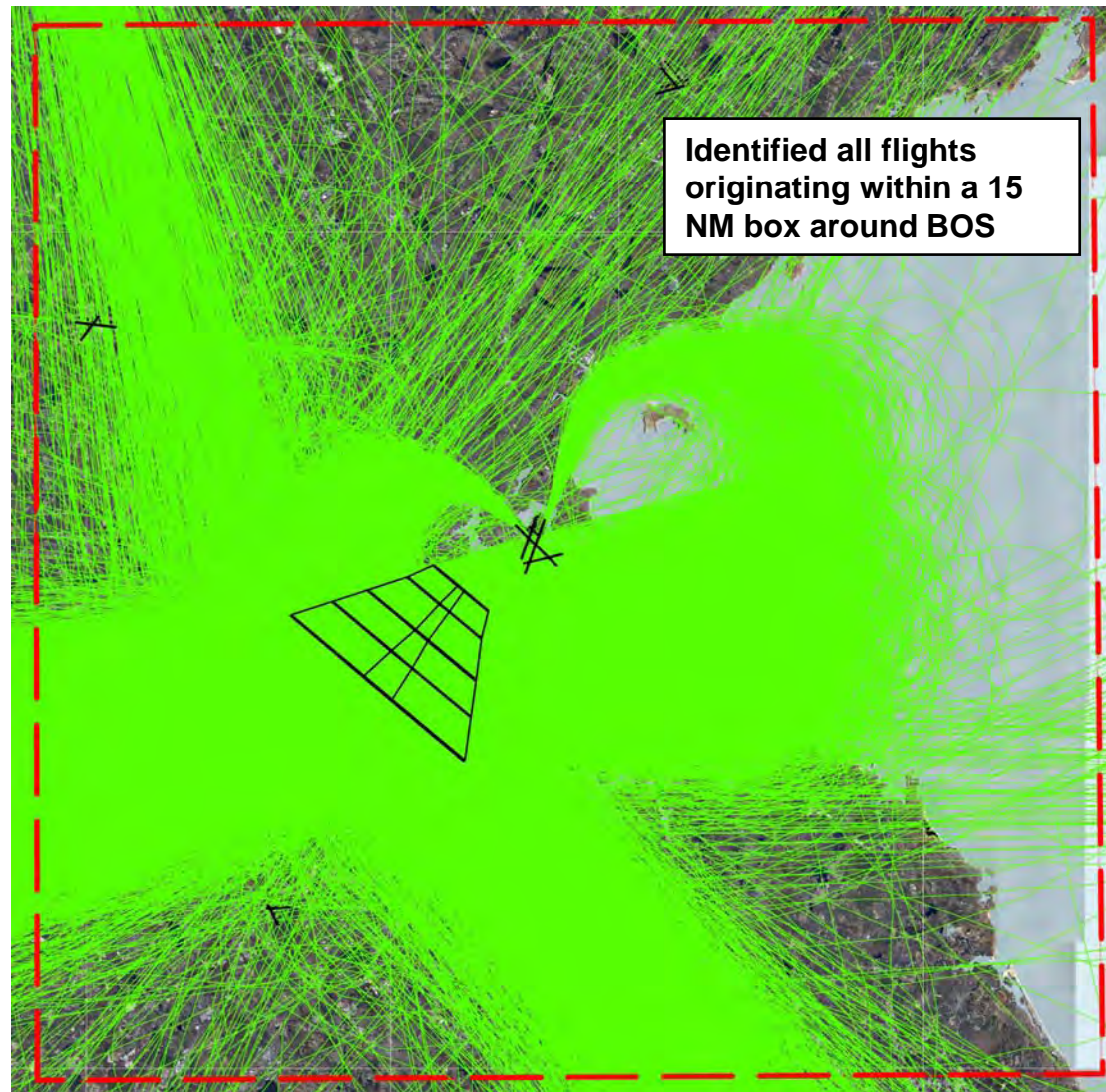


Analysis Process

- **Step 1: Identify BOS departures**
- **Step 2: Eliminate Turboprops, Props, Helicopters, and flights with no equipment type**
- **Step 3: Identify gate crossings and eliminate departures from other runways**
- **Step 4: Categorize flights based on gate crossing combinations**
- **Step 5: Eliminate “Late Pickups” and “Early Drops”**
- **Step 6: Visual inspection and re-categorization as necessary**



Step 1: Identify BOS Departures





Step 2: Eliminate Non-Jet Aircraft Types

- **Aircraft Type Categories**

J - Known jets

T - Turboprops

P - Props

H - Helicopters

? - Unknown aircraft types

Null - Null aircraft type or new aircraft type that has not yet been categorized

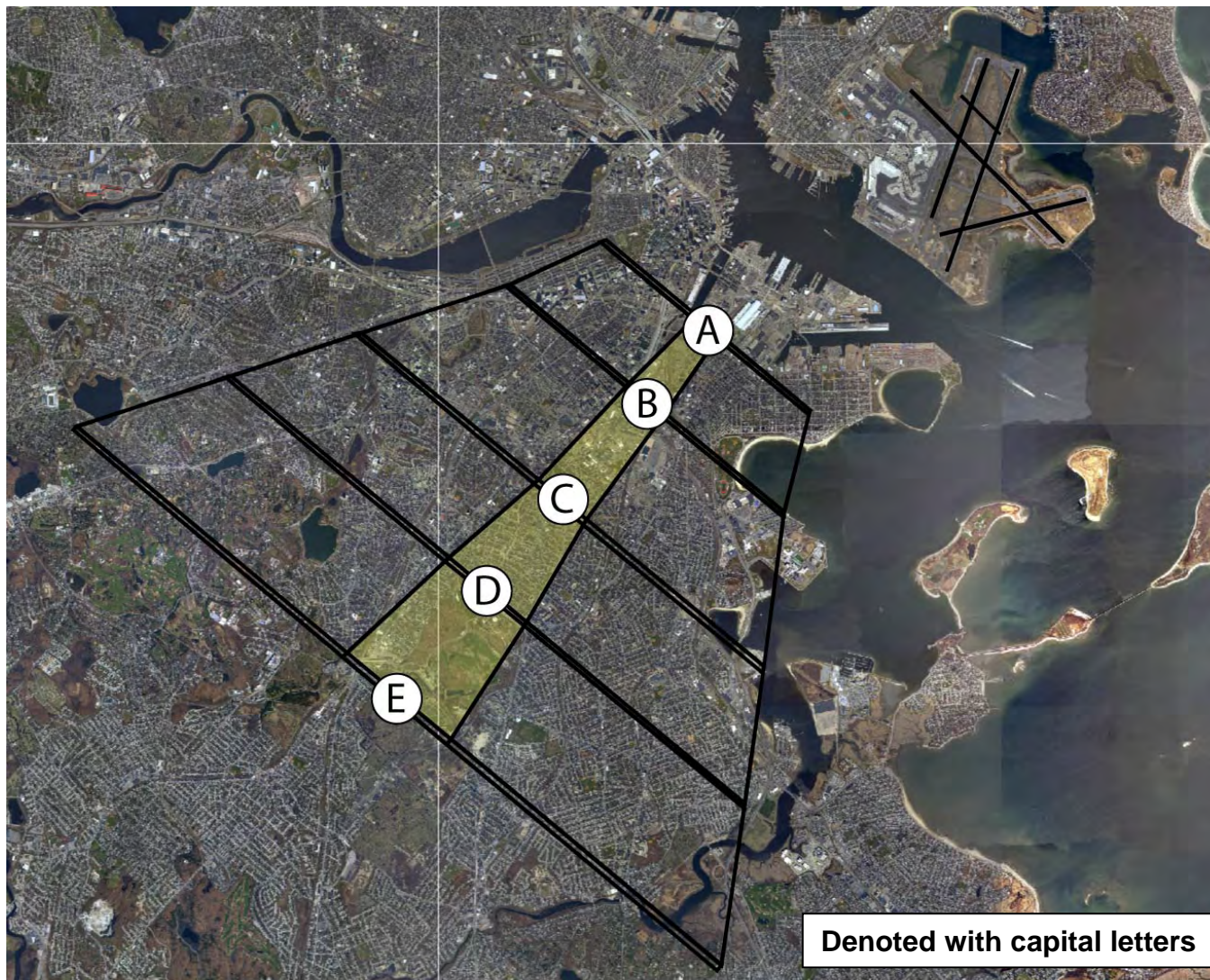


Step 3: Identify Gate Crossings

- **Different types of gates were created**
 - **Gates along the Runway 27 departure corridor to identify corridor compliance**
 - **Gates off each runway end to eliminate flights from other runways**
 - **A supplemental gate for separating Runway 22R departures from Runway 27 departures**
- **For each radar track, gate crossings were identified and flagged**
 - **For the gates off each runway end, crossings below 5,000 feet were identified**
 - **For the Runway 27 gates and the supplemental gate, crossings below 12,000 feet were identified**



Runway 27 Corridor Center Gates



Denoted with capital letters